

SAFETY DATA SHEET (SDS) DEVELOPMENT, STORAGE, AND REVIEW

This plan defines the requirements for developing, storing, and reviewing safety data sheets (SDSs) prepared by Ames Laboratory in order to ensure information compliant with the minimum requirements outlined in 29 CFR 1910.1200(b), 29 CFR 1910.1200(g), and 29 CFR 1910.1200 Appendix D is provided to users of hazardous chemicals produced and distributed by Ames Laboratory.

1.0 APPROVAL RECORD

- Reviewed by: Training, Documents & QA Coordinator (Molly Granseth)
- Reviewed by: Chemical Hygiene Officer (Julia Sager)
- Reviewed by: Manager, Materials Processing Center (Matt Besser)
- Reviewed by: Transportation Specialist (Sallie Spencer)
- Approved by: Quality Assurance Manager (Sean Whalen)
- Approved by: Legal Counsel (Barbara Biederman)
- Approved by: Assistant Director for Scientific Planning (Cynthia Jenks)
- Approved by: Chief Operation Officer (Mark Murphy)
- Approved by: Deputy Director (Tom Lograsso)
- Approved by: Director (Adam Schwartz)

The official approval record for this document is maintained by Training & Documents.

2.0 REVISION/REVIEW INFORMATION

In accordance with the Ames Laboratory Document Control program, this document will be reviewed every three years at a minimum. The revision description for this document is available from and maintained by the author.

3.0 PURPOSE AND SCOPE

The [OSHA Hazard Communication Standard \(HCS\)](#) requires chemical manufacturers, distributors, or importers to provide safety data sheets (SDSs) to communicate the hazards associated with specific hazardous chemical products. SDSs were previously known as material safety data sheets (MSDSs). Ames Laboratory is defined as a chemical manufacturer for such activities as chemical and alloy synthesis and research sample preparation when these chemicals or samples are transferred off-site. Laboratory personnel responsible for the fabrication of these materials, and cognizant of the potential hazards of the materials, must create and distribute SDSs that comply with the requirements of the standard.

[29 CFR 1200\(b\)\(4\)](#) states, *“Laboratory employers that ship hazardous chemicals are considered to be either a chemical manufacturer or a distributor under this rule, and thus must ensure that any containers of hazardous chemicals leaving the laboratory are labeled in accordance with paragraph (f) of this section, and that a safety data sheet is provided to distributors and other employers in accordance with paragraphs (g)(6) and (g)(7) of this section.”*

The purpose of this plan is to define requirements for Laboratory personnel when preparing, storing, and reviewing SDSs to ensure accurate and timely information is provided to users of hazardous chemicals produced and distributed by Ames Laboratory.

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3.1. Definitions from 29 CFR 1910.1200(c)

"Chemical manufacturer" means an employer with a workplace where chemical(s) are produced for use or distribution.

"Employee" means a worker who may be exposed to hazardous chemicals under normal operating conditions or in foreseeable emergencies. Workers such as office workers or bank tellers who encounter hazardous chemicals only in non-routine, isolated instances are not covered.

"Employer" means a person engaged in a business where chemicals are either used, distributed, or are produced for use or distribution, including a contractor or subcontractor.

"Hazardous chemical" means any chemical which is classified as a physical hazard or a health hazard, a simple asphyxiant, combustible dust, pyrophoric gas, or hazard not otherwise classified.

"Produce" means to manufacture, process, formulate, blend, extract, generate, emit, or repackage.

"Responsible party" means someone who can provide additional information on the hazardous chemical and appropriate emergency procedures, if necessary.

"Safety data sheet (SDS)" means written or printed material concerning a hazardous chemical that is prepared in accordance with paragraph (g) of 29 CFR 1910.1200.

"Signal word" means a word used to indicate the relative level of severity of hazard and alert the reader to a potential hazard on the label. The signal words used in this section are "danger" and "warning." "Danger" is used for the more severe hazards, while "warning" is used for the less severe.

"Use" means to package, handle, react, emit, extract, generate as a byproduct, or transfer.

4.0 ROLES AND RESPONSIBILITIES

4.1. Employer (Ames Laboratory)

Ames Laboratory shall obtain or develop a safety data sheet (SDS) for each hazardous chemical produced by and shipped from, or imported to, its facilities. SDS preparation and storage requirements for chemicals produced on-site and transferred off-site are covered by this plan. SDS requirements for materials purchased, brought, and used on-site are outlined in the ESH&A Manual, Section 4, Industrial Hygiene.

SDS preparation is not required for materials produced on-site by one party and used or evaluated by another party at the same site. Communication of potential hazards is required, however, either through labeling or some other form of communication.

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Ames Laboratory shall either include SDSs with the shipped containers or transmit them to the distributor or employer prior to or at the time of the shipment.

SDS development and distribution must comply with [29 CFR 1910.1200\(g\)](#) and [Appendix D](#).

4.2 SDS Preparer

The preparer is responsible for the development of the SDS in accordance with Section 5.1 of this plan and for ensuring readily-available, accurate information regarding possible chemical hazards is communicated. If hazard information is unavailable or unknown then the preparer is responsible for communicating this to users.

The preparer will be notified when the review is complete and the SDS is signed and documented. **ONLY REVIEWED AND DOCUMENTED SDS MAY BE TRANSMITTED TO THE END-USER**, either with the hazardous materials shipment or by other methods (e-mail, fax, postal, etc.).

4.3 Hazardous Materials Shipper

SDSs are not required to be included in a shipment of hazardous materials, but must be provided to the end user, if required, via an alternative method (e-mail, fax, postal, etc.). It is the responsibility of the shipper/preparer to [provide sufficient hazard information to Materials and Transportation staff](#) to allow them to assign DOT shipping classifications and provide proper packaging and labeling. It is the responsibility of Hazardous Materials Transportation staff to safely package, label, and ship hazardous materials; they may refuse to ship items if proper information is not provided.

4.4 Document Control

Document Control is responsible for maintaining the [SDS Template](#) and document submission form, receiving SDS submissions, assigning a Document Control number, uploading the SDS to CyBox for review, and maintaining the SDS on the Ames Laboratory Forms and Documents page.

4.5 Environment, Safety, Health, and Assurance (ESH&A) Manager

The ESH&A Manager is responsible for establishing and maintaining a review procedure to ensure SDSs developed by the Laboratory meet applicable requirements. The ESH&A Manager may assign review roles as necessary to validate the legal, scientific, and procedural aspects of the SDS.

4.6 Other Roles and Responsibilities

Other employee roles and responsibilities are defined in [Line Management Roles and Responsibilities at Ames Laboratory](#).

5.0 PROGRAM/INFORMATION

Safety data sheets play a critical role in the dissemination of information to employees and users of hazardous chemicals produced and distributed by Ames Laboratory. The Laboratory's unique role in the creation and purification of often one-of-a-kind materials and samples for national and international research drives the need for accurate and complete hazard communication.

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Ames Laboratory is designated as a chemical manufacturer due to its production and distribution of hazardous chemicals, and therefore must comply with the regulations listed in Section 3.2 of this plan. Although in practice the Laboratory already meets the regulatory requirements and needs of its customers through the development and distribution of SDSs, this plan is designed to clarify requirements for authors under the revised HAZCOM standard and new SDS format, establish a uniform and accessible repository of prepared SDSs, and ensure SDSs include at least the minimum information required in 29 CFR 1910.1200, Appendix D.

5.1. SDS Preparation

Manufacturers of hazardous chemicals are required to complete SDSs to the best of their knowledge and provide them as required by regulation or if requested by a destination facility. Due to potential liability, SDSs will be created in accordance with 29 CFR 1910.1200(g) and Appendix D, tracked through the Ames Laboratory Document Control program, and reviewed according to the [Quality Assurance Program Standard Operating Procedure for Review of Ames Laboratory-Developed Safety Data Sheets](#). This ensures consistent nomenclature and document tracking.

- 1) Develop the SDS using the [SDS template](#) available on the [Ames Lab Forms and Documents page](#), and [29 CFR 1910.1200\(g\)](#), [Appendix A](#), and [Appendix D](#). Other resources include the Materials Processing Center (MPC) [SDS Wiki](#), examples of acceptable SDSs on the [Forms and Documents](#) page, and ESH&A staff members.
 - a. The preparer must use their best judgement to ensure that known hazards are included in the SDS. This includes, but is not limited to:
 - i. Identification of relevant data regarding the hazards of a chemical.
 - ii. Subsequent review of those data to ascertain the hazards associated with the chemical.
 - iii. Determination of whether the chemical will be classified as hazardous and the degree of hazard.
 - b. If the properties of the chemical are not known, then the preparer must indicate, where applicable, the following language:

“FOR RESEARCH USE ONLY. The chemical and toxicological properties of this material are not fully known. Use with caution following best standard laboratory practices.”
- 2) Download the [Document Submission Form](#) and complete.
- 3) Submit completed SDS and Document Submission Form to doccontrol@ameslab.gov. The Document Control Office will assign a document number and place the SDS into CyBox for review.
- 4) The preparer will be notified by ESH&A when the review is complete and the SDS is signed and documented. Only reviewed SDS may be transmitted to the end user, either with the hazardous materials shipment or via an alternative method.

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5.2. SDS Storage

Document Control will manage reviewed SDSs in the document control system, and will be available on the Ames Laboratory Forms and Documents web page.

5.3. SDS Quality Assurance Review

SDS compliance review will be completed according to the [Quality Assurance Program Standard Operating Procedure for Review of Safety Data Sheets](#).

6.0 POST PERFORMANCE ACTIVITY

SDSs are not required to be periodically reviewed, and do not need to be resubmitted for review unless the preparer becomes aware of any new, significant information regarding the hazards of a chemical, or ways to protect against the hazards. This new information shall be added to the safety data sheet within three months, or if the chemical is not in use prior to introducing the chemical into the workplace again.

Examples of significant changes include the addition of new or modified information regarding physical characteristics, toxicological data, reactivity or incompatibility, or changes in emergency contacts. If a SDS is modified, the updated version must be provided to the receiver with the first shipment after modification. There is no requirement to transmit a revised SDS to previous recipients.

7.0 REFERENCES

OSHA, 29 CFR 1910.1200(g) and Appendices. United Nations Globally Harmonized System of Classification and Labelling of Chemicals (GHS), third revised edition, United Nations, 2009.

OSHA, [29 CFR 1910.1450. Occupational Exposure to Hazardous Chemicals in Laboratories](#).

[OSHA's Hazard Communication Safety and Health Topics page](#)

[Safety Data Sheet \(SDS\) Template \(Form 10200.214\)](#)

[Line Management Roles and Responsibilities at Ames Laboratory \(Policy 40000.003\)](#)

[Quality Assurance Program Standard Operating Procedure for Review of Safety Data Sheets](#)